Introduction

It is easier to explain what ***Always Something New*** is not than what it is. It is not a chronological history. It does not attempt to be a complete record of discovery and invention at the four regional research laboratories. It is not an overview; the scientific landscape it traverses is far too broad and diverse to permit a single focus on events. Most certainly, it is not a *Who's Who* of accomplishment, since it rarely credits a researcher by name. If the imagination can be stretched enough to consider the regional centers as families, the book can be considered as a family album, a reminiscence of memorable and important events during the last 50 years. In its concluding chapter, it also outlines several of the research challenges ahead for the centers as they begin their second half century.

Partly because of the sheer volume of important research conducted at the four laboratories since 1940, few people, including many scientists working at the regional labs today, fully appreciate the magnitude of what has been accomplished. Researchers at the centers took the lead in modernizing several industries saddled with obsolete processes and machinery, including cotton processing and the manufacture of leather, turpentine, and maple syrup. They improved many agricultural products, including cotton and woolen fabrics and soybean oil, making them much more acceptable to consumers. They made the critical discovery that created soft vinyl plastics.

They developed many new food products from farm surpluses, including frozen concentrated orange juice and apple juice and dehydrated potato flakes. They performed much of the crucial early research that made frozen foods popular, and they were instrumental in launching the soybean oil industry. They expanded U.S. exports by making domestic soybeans and wheat flour acceptable to Asian markets; they created nutritious food supplements for the humanitarian Food for Peace Program.

Scientists at the regional labs made enormous contributions to human health and food safety. During World War II, they made possible the mass production of penicillin and the many antibiotics that followed. Later, they helped synthesize vitamins, rutin, cortisone, and other pharmaceuticals. Their research made it possible for people with lactose intolerance to drink milk, and they developed an extender for human blood that saved uncounted American lives in Korea. In recent years, they have become authorities on detecting and preventing many food contaminants.

Researchers conducted several exhaustive and rewarding searches for plant sources of new drugs and oils for food and industrial use. They screened and studied thousands of microorganisms, looking for (and finding) microbes useful to industry and medicine. They also established one of the most complete collections of microorganisms in the world (see p. 134).

They solved problems of agricultural waste disposal that threatened the future of whole industries, including processors of fruits and vegetables and dairies and leather manufacturers. They created a host of nonfood products from farm commodities, including a thirsty compound called Super Slurper and biodegradable plastics.

They made many basic discoveries about the chemistry of farm commodities, and they pioneered the study of flavors and aromas. They patented hundreds of inventions and processes, many of which were adopted by industry. Several were used for a time, only to be supplanted by similar compounds made from cheap petroleum. Petrochemicals, in fact, have been the chief competitors over the years of chemicals made from agricultural commodities. Higher oil prices and a national policy of reduced reliance on oil imports could alter this picture in the future.

In reviewing the accomplishments of the regional centers, it is difficult to see how their record could have been realized except with Federal funding and direction. In most instances, business and industry are unable to afford research of the kind carried out at the ARS laboratories. Further, much of their research affects whole regions or the entire Nation, making it inappropriate for conduct by State experiment stations. Federally funded agricultural research, when carried out with the advice and cooperation of growers, processors, and industry, seems most productive of results.